EXHIBIT VI

SECTION 404(b)(1) EVALUATIONS

SECTION 404(b)(1) EVALUATION
DREDGED MATERIAL

I. Project Description

a. Location. Tampa Harbor, Big Bend Navigation Project, Hillsborough County, Florida.

b. General Description. Sunken Island Disposal. This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Approximately 95,000 CY of material is needed for the west and northwest banks of the island to mitigate erosion. Placement would be along roughly 3200 feet of shoreline to extend the shoreline outward an average of 100 feet at an elevation of 3 feet above mlw. The land would then be graded from a land surface elevation of +3 feet above mlw to a bay bottom elevation of about 5 feet below mlw. Figure F-4, Appendix F, provides a cross section of the shoreline extension. Material placed in that area is still susceptible to continued erosion. *Spartina alternaflora* would be used to provide vegetative stabilization to the shoreline. The south side of the island would be extended with one or two sawtooth-shaped land areas. Development of those land areas would require an estimated 310,000 CY to raise the existing bay bottom of 5 feet below mlw to land surface elevation of 5 feet above mlw. *Spartina sp.* plants would be planted along 2700 feet of shoreline on the eastern and southeastern banks of the sawtooth land area(s). The planting zone for *Spartina sp.* would extend from the shoreline to about 50 feet off shore. Mangroves stands are expected to rapidly develop in the Spartina planting areas. The elevation of the bay bottom adjacent to the sawtooth-shaped land areas would be raised to create shallow bay areas suitable for the development of mudflats and marsh habitats. That filling would require an estimated 140,000 CY to raise the bay bottom from 5 feet below mlw. The resulting bay depth would be 1 to 2 feet below mlw. Plan and cross sectional views of the sawtooth extension(s) and adjacent bay areas are in Figure F-4, Appendix F. Dredged material from Big Bend would be pumped a distance of about 3 miles to Sunken Island. Material may need to be stock-piled to facilitate the construction process. Silt curtains would be used to control the level of turbidity entering the bay. Specialized construction equipment may be required, such as hydraulic amphibious excavators. Work would be scheduled to avoid the migratory bird nesting season (1 February-31 August) for the island.

c. Authority and Purpose. The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. These resolutions request review of the Chief of Engineer's report on Tampa Harbor, Florida, printed in House Document 401, 91st Congress, 2nd Session, and other

pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The channel bottom is underlain by unconsolidated materials consisting of sand, silt, clay and shell. Tests indicate the presence of compact, hard limestone layers and lenses of variable hardness and thickness.

(2) Quantity of Material. Approximately 95,000 CY of material is needed for the west and northwest banks of the island to mitigate erosion. Development of those land areas would require an estimated 310,000 CY. And bay bottom filling would require an estimated 140,000 CY to raise the bay bottom from 5 feet below mlw.

(3) Source of Material. The dredged material would come from the Big Bend Navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. A small island known as Sunken or "Bird" Island located next to the Alafia River Navigation Channel.

(2) Type of Site. A former disposal island that has been colonized by trees and shrubs.

(3) Type of Habitat. The area is an island having bird nesting colonies on it. There is sand beach and emergent wetlands around the fringe.

(4) Timing and Duration of Discharge. The work would likely take 3 months to construct. The work would be scheduled outside the bird nesting season for the island (1 February-31 August).

f. Description of Disposal Method. The material would be slurried and pumped to the site through a pipeline.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The substrate ranges from -5 feet mlw to 0 feet mlw. The slope is gentle.

(2) Sediment Type. The bottom is sand that was deposited from former dredging episodes.

(3) Dredged/Fill Material Movement. The material would be subject to the erosive forces of the wind and wave action of the Bay.

(4) Physical Effects on Benthos. The material would eliminate the benthic organisms but would be easily recolonized.

(5) Other Effects. None.

(6) Actions Taken to Minimize Impacts. Double silt curtains would be used to minimize the turbidity.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(a) Salinity. No impacts to salinity at disposal site.

(b) Water Chemistry. None

(c) Clarity. Temporary increase in turbidity during construction.

(d) Color. None

(e) Odor. The disposal site is located adjacent to uninhabited areas and any odors will be temporary. The effluent return to the Bay should have little or no odor and is not expected to cause either short of long-term odor problems in the Gulf.

(f) Taste. Not applicable.

(g) Dissolved Gas Levels. None.

(h) Nutrients. None.

(i) Eutrophication. None.

(2) Current Patterns and Circulation. None.

(3) Normal Water Level Fluctuations. None.

(4) Salinity Gradients. None.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. There will be a short-term substantial increase in the suspended particulate/turbidity in the disposal area. Levels would be controlled to meet state standard.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration reduction will be temporarily experienced at the disposal site.

(b) Dissolved Oxygen. None.

(c) Toxic Metals and Organics. None.

(d) Pathogens. Not Applicable.

(e) Aesthetics. Since the construction areas are removed from areas of human habitation, there would be relatively no impact on aesthetics.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. Photosynthesis would be substantially reduced within the disposal area.

(b) Suspension/Filter Feeders. Little or no impact is expected.

(c) Sight Feeders. Little or no impact is expected.

(4) Actions taken to Minimize Impacts. None is required.

d. Contaminant Determinations. No sources of pollution have

been identified in the project area, therefore, no contaminants are expected to be encountered.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. There would be no significant impacts on benthos in the disposal.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. There would be no significant impact on the aquatic food web within the area of impact.

(5) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. Not applicable.

(b) Wetlands. There would be an increase in wetland habitat created.

(c) Mud Flats. None.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. None.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. There would be no affects on manatees because standard state and federal conditions for dredging will be implemented to protect the manatees.

(7) Other Wildlife. There would be an increase in the amount of migratory bird nesting habitat.

(8) Actions to Minimize Impacts. Work schedules would try to avoid migratory bird nesting periods. However, should the dredging be delayed precautions will be taken to avoid impacting nesting until the project is complete. Also precautions will also be taken to avoid impacting manatees within the work area.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination. Not applicable.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge return water must comply with State water quality standards.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. Not applicable.

(b) Recreational and Commercial Fisheries. None.

(c) Water Related Recreation. None.

(d) Aesthetics. Short-term minor impact during construction period.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. None.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. None are apparent.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

SECTION 404(b)(1) EVALUATION
DREDGED MATERIAL

I. Project Description

a. Location. Tampa Harbor, Big Bend Navigation Project, Hillsborough County, Florida.

b. General Description. Whiskey Stump Key Disposal. This alternative is a one time only proposal. It is considered a beneficial use of dredged material as defined by Section 204 of the Water Resources Development Act of 1992. The materials could come from either the construction of the new channel or periodic maintenance of the channel. Two large holes and one small hole exsit on the east and west side of Whiskey Stump Key shown on Figure F-3, Appendix F. The holes were apparently dredged for fill material and they cover an area of about 53 acres. The holes have existing depths around 12 feet below mlw. The plan is to fill the holes to a depth of 1 foot below mlw. To help reduce the level of impact, several measures would be taken in the discharge area. Double silt curtains will be required to keep unacceptable levels of turbidity from entering the surrounding bay area. The discharge pipe would be positioned near the bottom of the holes to minimize the volume of fines in suspension. Pumping rates would be reduced to provide more time for fines to settle and consolidate. A spreader head would be attached to the end of the discharge pipe to help distribute the capping material more uniformly over the fines, minimizing the heaving effect. Pumping rates would be reduced to provide more time for fines in the material to settle and consolidate. A small channel 2 to 6 feet in depth, located south of the holes, would remain to permit shallow draft vessal access.

c. Authority and Purpose. The present study is authorized by Senate and House Resolutions adopted 29 May 1979 and 14 November 1979, respectively. These resolutions request review of the Chief of Engineer's report on Tampa Harbor, Florida, printed in House Document 401, 91st Congress, 2nd Session, and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to improvement and maintenance of the existing local project for Big Bend Channel.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material. The channel bottom is underlain by unconsolidated materials consisting of sand, silt, clay and shell. Tests indicate the presence of compact, hard limestone layers and lenses of variable hardness and thichness.

(2) Quantity of Material. Filling the holes will require about 950,000 CY

of material.

(3) Source of Material. The dredged material would come from the Big Bend Navigation channel.

e. Description of the Proposed Discharge Site.

(1) Size and Location. The holes cover 53 acres.

(2) Type of Site. Former dredge borrow sites.

(3) Type of Habitat. The sites are bay bottom that act like asilt and sediment trap.

(4) Timing and Duration of Discharge. The dredging and disposal will take approximately 3 months to accomplish. No time frame has been established.

f. Description of Disposal Method. The material would be slurried and pumped to the site through a pipeline. Double silt curtains would likely be required to control turbidity.

II. Factual Determinations

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The bottom is flat and has a bottom elevation of -12 feet mlw.

(2) Sediment Type. Silty bottom.

(3) Dredged/Fill Material Movement. The dredged material would be confined to the holes. There is no significant tidal currents in the area to cause shifting of the material once it is in place.

(4) Physical Effects on Benthos. It would cover the bottom benthic organisms in the bottom sediments.

(5) Other Effects. None.

(6) Actions Taken to Minimize Impacts. None.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(5) Effects on Special Aquatic Sites.

(a). Sanctuaries and Refuges. None.

(b) Wetlands. None.

(c) Mud Flats. None.

(d) Vegetated Shallows. None would be affected.

(e) Coral Reefs. None.

(f) Riffle and Pool Complexes. Not applicable.

(6) Threatened and Endangered Species. There would be no affects on manatees because standard state and federal conditions for dredging will be implemented to protect the manatees.

(7) Other Wildlife. None.

(8) Actions to Minimize Impacts. Also precautions will also be taken to avoid impacting manatees within the work area.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination.

(2) Determination of Compliance with Applicable Water Quality Standards. The discharge return water must comply with State water quality standards.

(3) Potential Effects on Human Use Characteristic

(a) Municipal and Private Water Supply. None.

(b) Recreational and Commercial Fisheries.
Immediate impacts to commercial fisheries resources will be insignificant. Long-term, this could benrefit recreational fisheries.

(c) Water Related Recreation. Reduced recreational boating in the disposal area.

(d) Aesthetics. Tempoaray construction impacts.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. None.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. None are apparent.

h. Determination of Secondary Effects on the Aquatic Ecosystem. Not applicable.

(a) Salinity. No impacts to salinity at disposal site.

(b) Water Chemistry. No impacts.

(c) Clarity. Temporary increase in turbidity during construction.

(d) Color. No impacts

(e) Odor. None.

(f) Taste. Not applicable.

(g) Dissolved Gas Levels. D.O. levels may be temporarily depressed during construction.

(h) Nutrients. None.

(i) Eutrophication. None.

(2) Current Patterns and Circulation. None.

(3) Normal Water Level Fluctuations. Not applicable.

(4) Salinity Gradients. Not applicable.

(5) Actions That Will Be Taken to Minimize Impacts. The disposal site will be operated to maintain state water quality standards.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulate and Turbidity Levels in Vicinity of Disposal Site. There will be a short-term increase in the suspended particulate/turbidity in the disposal area. Double turbidity curtains would likely be required to control levels outside the site. Levels should not exceed state standard.

(2) Effects (degree and duration) on Chemical and Physical values

(a) Light penetration. Light penetration reduction will be temporarily experienced at the disposal site.

(b) Dissolved Oxygen. D.O. levels may be temporarily lowered

construction with D.O. levels rapidly returning to normal after construction ceases.

(c) Toxic Metals and Organics. None.

(d) Pathogens. Not Applicable.

(e) Aesthetics. A turbidity plume will be generated within the disposal site but will be removed from most human observation.

(f) Others as Appropriate. None.

(3) Effects on Biota (consider environmental values in sections 230.21, as appropriate)

(a) Primary Production, Photosynthesis. None.

(b) Suspension/Filter Feeders. Little or no impact is expected outside the disposal area.

(c) Sight Feeders. Little or no impact is expected outside the disposal area.

(4) Actions taken to Minimize Impacts. Double turbidity curtains would be required.

d. Contaminant Determinations. No sources of pollution have been identified in the project area, therefore, no contaminants are expected to be encountered.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton. No significant effects.

(2) Effects on Benthos. There would be significant impacts on benthos in the disposal area.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. There would be no significant impact on the aquatic food web within the area of impact. In the long-term, there would be a benefit to the food chain by providing additional increased water quality.